Detailed Description of Final Concept

Based upon our analysis, the 6000 series will be the best choice of alloy to solve our problems associated with the bleachers of Beaver Stadium.

Human factors has a high rating because fans are not likely to have an impact in weakening the bleachers and it requires little maintenance. Implementation also has a high rating because of the alloy’s weldability and ease of fabrication, so it’s easier to install. Economic Viability’s high rating is due to the alloy being one of the least expensive options. Innovative has a fairly high rating as well because the 6000 series has the capability of being dyed, so it could provide a fresh new look for the stadium using blue and white bleachers. The Quality of Life is fairly high due to the alloy’s fatigue properties.

After looking at the problems we noticed with the bleachers (breaking during a game, rocking back and forth, weathering, and cracks freezing/expanding), implementing the 6000 series alloy as the material for the bleachers would almost completely solve these problems. Moreover, the 6000 series costs less than the 3000 series which is currently being used right now.
Dirt
- Mixed using explosives, shovels, etc.

Bauxite Ore
- Bayer Process removes impurities

Aluminum Oxide
- Electrolysis separates ions and reduces Al

Aluminum Metal
- Alloying Process mixes Al w/ Mg & Si

Aluminum Alloy
- Roll, Cut, Bend, Weld to form product
- Shipping to deliver product to location
- Assembled using bolts, screws, drills, etc.

Bleacher Parts
- Shredding, Melting to reuse the alloy

Heat

Trucks, planes, trains